



**City of Raleigh Public Utilities Department**

## **Biosolids EMS Manual**





# Biosolids EMS Manual Table of Contents

<b>Section</b>	
<b>1)</b>	EMS Manual <ul style="list-style-type: none"><li><b>a)</b> Background of the NBP biosolids EMS program</li><li><b>b)</b> Review and approval process</li></ul>
<b>2)</b>	Biosolids Management Policy <ul style="list-style-type: none"><li><b>a)</b> Policy Statement</li><li><b>b)</b> Policy Communication</li></ul>
<b>3)</b>	Critical Control Points and Operational Control of Critical Control Points <ul style="list-style-type: none"><li><b>a)</b> Procedure for identifying and updating CCPs and operational controls</li></ul>
<b>4)</b>	Identifying Legal Requirements <ul style="list-style-type: none"><li><b>a)</b> Procedure for identifying and tracking legal requirements</li><li><b>b)</b> Monitoring regulatory compliance of contractors</li></ul>
<b>5)</b>	Goals and Objectives <ul style="list-style-type: none"><li><b>a)</b> Procedure for setting goals and objectives</li></ul>
<b>6)</b>	Public Participation in Planning and Communication <ul style="list-style-type: none"><li><b>a)</b> Procedure for receiving public input</li><li><b>b)</b> Procedure for response and consideration of public input</li><li><b>c)</b> Communication and outreach</li><li><b>d)</b> Internal Communication</li><li><b>e)</b> Contractor Communication</li></ul>
<b>7)</b>	Roles and Responsibilities <ul style="list-style-type: none"><li><b>a)</b> Biosolids EMS roles and responsibilities</li></ul>
<b>8)</b>	Training <ul style="list-style-type: none"><li><b>a)</b> Procedure for training</li><li><b>b)</b> Procedure for competency</li><li><b>c)</b> Procedure for recordkeeping</li></ul>
<b>9)</b>	(combined with section 6)
<b>10)</b>	(combined with section 3)
<b>11)</b>	Emergency Preparedness and Response <ul style="list-style-type: none"><li><b>a)</b> Emergency Plan Procedures</li></ul>



- 12) EMS Documentation and Document Control**
  - a) Document review/approval procedure
  - b) Document control procedure
  - c) EMS records procedure
  - d) Attachments
    - i) Attachment 12-1 – Documents Requiring Control
    - ii) Attachment 12-2 - Records Requiring Control
- 13) Monitoring and Measurement**
  - a) Procedure for monitoring performance and compliance at CCPs
  - b) Procedure for monitoring progress toward goals & objectives
- 14) Corrective and Preventive Action**
  - a) Procedure for identifying and correcting nonconformances
- 15) Biosolids Management Program Report**
  - a) Procedure for preparing annual biosolids management program report
- 16) Internal EMS Audit**
  - a) Procedure for internal audit
  - b) Selecting and training EMS auditors
- 17) Management Review**
  - a) Procedure for conducting management review
  - b) Management of Change procedure

## **Glossary of Terms**

## **Appendices**

- Appendix 1-1 – EMS Program Structure
- Appendix 2-1 – Letter of EMS Implementation
- Appendix 3-1 – CCP Schematic Diagram
- Appendix 3-2 – CCP & Relevant Environmental Impacts
- Appendix 3-3 – Critical Control Points & Operational Controls
- Appendix 5-1 – City of Raleigh Biosolids EMS Goals & Objectives
- Appendix 5-2 – Goal Setting Process Chart
- Appendix 6-1 – Citizen/Neighbor Contact Tracking Form
- Appendix 7-1 – Raleigh Biosolids EMS Roles & Responsibilities (by Section)
- Appendix 7-2 – Biosolids Organizational Chart
- Appendix 8-1 – Attachment D – Special Conditions to Contract
- Appendix 11-1 – Biosolids Emergency Operations Plan (EOP)
- Appendix 14-1 – Biosolids EMS Corrective and Preventive Action Plan Form
- Appendix 14-2 – Corrective Action Plan Chart
- Appendix 14-3 – CAPA and Management of Change Process Chart
- Appendix 17-1 – Management of Change Form
- Appendix 17-2 – Management Review Process Chart



City of Raleigh Public Utilities Department  
Biosolids Environmental Management Systems Manual  
Records of Revisions

Document Control Log		
Title	Approved By:	Approval Date
Biosolids Environmental Management System	Marti Gibson, EMS Coordinator	October 1, 2005
Revision Number	Description of Revisions	Date
00	Original Distribution	October 1, 2005
01	Revisions resulting from initial internal audit: <ul style="list-style-type: none"><li>• Element 1: Added reference to Letter of Implementation (Attachment 2-1) and contact info.</li><li>• Element 2: Added Attachment 2-1, updated info for website</li><li>• Element 3: Updated and revised Attachments 3-1, 3-2 &amp; 3-3</li><li>• Element 4: Updated Attachments 4-1 &amp; 4-2, updated procedures to include contractor responsibilities</li><li>• Element 5: Revised Attachment 5-1 to include items from Element 13, updated procedure</li><li>• Element 6: Updated procedures, Revised Attachments 6-1 &amp; 6-2</li><li>• Element 7: Revised section, revised Attachment 7-1</li><li>• Element 8: Updated procedure, training program</li><li>• Element 9: Revised procedures to include better explanation, updated Attachment 9-1 &amp; added Attachment 9-2</li><li>• Element 10: Revised element for clarity</li><li>• Element 11: Added Attachment 11-1, updated procedure to include contractors.</li><li>• Element 12: Revised procedure to coincide with how records are being maintained.</li><li>• Element 13: Updated procedure to add example of anecdotal evidence, removed Attachment 13-1 (added to Attachment 5-1), added reference to Element 14</li><li>• Element 14: Revised procedure to include routine monitoring and measurement</li><li>• Element 15: Updated inclusions in management</li></ul>	August 16, 2006



	<p>report and availability of report.</p> <ul style="list-style-type: none"> <li>• Element 16: Updated procedure for internal auditor rather than audit team. Referenced Element 14 for nonconformances</li> <li>• Element 17: Added reference to Element 12, defined management team</li> </ul>	
02	<p>Revisions resulting from Document Review</p> <ul style="list-style-type: none"> <li>• Added signature page for manual approval</li> <li>• Historical references were removed from manual</li> <li>• Element 1: Updated lines of authority for approving EMS manual and making updates to manual.</li> <li>• Element 2: Revised policy statement to only include one version.</li> <li>• Element 3: Revised CCPs and Operational Controls to be consistent with MoGP (Attachment 3-3) and added Roles and Responsibilities to chart, revised Attachment 3-2 to correspond with updated Attachment 3-3.</li> <li>• Element 4: Added DOT regulations to Attachment 4-1. Added procedure to track other requirements.</li> <li>• Element 5: Separated Goals and Objectives in Attachment 5-1, updated procedure to include interested party involvement in setting goals &amp; objectives.</li> <li>• Element 6: Updated procedure for receiving and incorporation interested party input into goals &amp; objectives for staff and contractors.</li> <li>• Element 7: Updated key role responsibilities to include contractor monitoring. Revised Attachment 7-1 for contractor training responsibilities.</li> <li>• Element 8: Updated procedure to include training in EMS program. Added reference to Attachment 8-1.</li> <li>• Element 9: Added contractor's responsibilities. Referenced Element 6.</li> <li>• Element 10: Added references for Element 6, Sections 6.2 and 6.3. Added additional item to communication and outreach section. Added information packet to publications. Added reference to Attachment 6-1. Added reference for Attachment 8-1.</li> <li>• Element 11: Updated procedure to include evaluation of EOP.</li> </ul>	October 12, 2006



	<ul style="list-style-type: none"> <li>• Element 12: Added additional documents and records to be controlled. Added procedure for controlling documents. Added reference to Attachment 8-1.</li> <li>• Element 13: Added reference to Attachment 8-1. Changed monitoring requirements for goals to annually.</li> <li>• Element 14: Updated procedure to include corrective action plans for minor nonconformances. Added tracking procedure for nonconformances.</li> <li>• Element 15: Changed requirement for Biosolids Management Program Report. Updated content to be included in Biosolids Management Program Report.</li> <li>• Element 16: Changed procedure to annual audits. Added program managers to receive audit reports. Revised procedure for scope of internal audits.</li> <li>• Element 17: Updated the agenda requirements for Management Reviews.</li> </ul>	
03	<p>Revisions resulting from Phase 2 of 3<sup>rd</sup> party audit</p> <ul style="list-style-type: none"> <li>• Section 1: grammatical changes</li> <li>• Section 2: Signed and dated biosolids policy statement by Director. Deleted Code of Good Practice. Grammatical changes. Appendix 2-1 – included director's signature.</li> <li>• Section 3: grammatical changes. Updated Appendices 3-2 and 3-3, Critical control points, operational controls, legal requirements, environmental impacts.</li> <li>• Section 4: Updated procedure, removed other requirements. Removed Appendices 4-1 &amp; 4-2.</li> <li>• Section 5: grammatical changes. Updated Appendix 5-1 with new goals, objectives and targets and actions.</li> <li>• Section 6: Updated procedures, added definition for interested parties. Removed Appendix 6-1.</li> <li>• Section 7: Added Appendix-2 Biosolids organizational chart.</li> <li>• Section 8: Changed scope, updated procedures, added competency section.</li> <li>• Section 9: Updated procedures. Removed old Appendix 9-1 (stakeholder's list) and changed Appendices 9-2 to 9-1 (contact tracking form). Deleted Appendix 9-3.</li> </ul>	November 16, 2006





	<ul style="list-style-type: none"> <li>• Section 10: Updated purpose and procedures. Added Section 8 to references.</li> <li>• Section 11: Updated procedures. Included testing of EOP. Updated references to include Sections 12 &amp; 14.</li> <li>• Section 12: Rewrote document control procedures. Updated references to include Section 16. Added Attachments 12-1 &amp; 12-2.</li> <li>• Section 13: Updated scope and procedures.</li> <li>• Section 14: Updated procedure for nonconformances. Added procedure for noncompliances. Added Appendix 14-2, formal corrective action plan chart.</li> <li>• Section 15: grammatical changes. Added contractor performance.</li> <li>• Section 16: Rewrote and updated internal audit process. Added references to Sections 4 &amp; 9.</li> <li>• Section 17: Updated purpose and procedure. Added management of change procedure.</li> </ul>	
04	<p>Revisions resulting from annual manual review</p> <ul style="list-style-type: none"> <li>• Section 1: Updated introduction and scope. Removed reference to manual sections.</li> <li>• Section 2: Updated scope.</li> <li>• Section 3: Combined sections 3 &amp; 10.</li> <li>• Section 4: Grammatical changes.</li> <li>• Section 5: Updated goal-setting procedure.</li> <li>• Section 6: Combined sections 6 &amp; 9.</li> <li>• Section 7: Updated and added new EMS team members.</li> <li>• Section 8: Updated training procedures.</li> <li>• Section 9: Combined with Section 6. Removed this section from manual.</li> <li>• Section 10: Combined with Section 3. Removed this section from manual.</li> <li>• Section 11: Updated procedure for comprehensive Emergency Plan. Changed review frequency.</li> <li>• Section 12: Grammatical changes. Added version number to EMS manual.</li> <li>• Section 13: Updated monitoring and measuring procedures. Grammatical changes.</li> <li>• Section 14: Updated procedures for identified nonconformances and noncompliances. Grammatical changes.</li> <li>• Section Grammatical changes.</li> <li>• Section 16: Changed from internal audit team to</li> </ul>	November 26, 2007



	<p>Process Control Training Officer.</p> <ul style="list-style-type: none"> <li>• Section 17: Grammatical changes. Updated Management of Change procedure. Added reference to Appendix 17-1.</li> <li>• Glossary of Terms: Removed definitions from individual section and added general definition section.</li> <li>• Cross Reference Table: Updated to reflect changes due to combination of sections 3 &amp; 10 and sections 6 &amp; 9.</li> <li>• Table of Contents: Updated to reflect changes in manual due to combination of sections.</li> </ul>	
05	<p>Revisions resulting from annual manual review and internal audit. Revisions made to reflect actual procedures utilized.</p> <ul style="list-style-type: none"> <li>• Updated cross reference table</li> <li>• Revised CAPA process (section 14)</li> <li>• Revised internal audit process (section 16)</li> <li>• Added calibration requirement to monitoring and measurement (section 13)</li> <li>• Revised management review process (section 17)</li> </ul>	October 30, 2008
06	<p>Condensed and streamlined entire EMS manual to more closely reflect current practices and reduce overall size of manual.</p> <ul style="list-style-type: none"> <li>• Updated section 6 to reflect change from Appendix 9-1 to 6-1.</li> </ul>	January 21, 2009
07	<p>Updated Appendix 5-1 to define action plans and responsible parties for goals and objectives</p>	August 1, 2009
08	<p>Revisions resulting from annual manual review and audit processes.</p> <ul style="list-style-type: none"> <li>• Section 1: changed public participation to improve relations with interested parties.</li> <li>• Section 2: Revised policy statement to include sustainability.</li> <li>• Section 3: grammatical changes.</li> <li>• Section 4: updated to include "other" requirements. Changed title of section to Compliance with Legal and Other Requirements. Updated references with change.</li> <li>• Appendix 11-1: updated with current info.</li> <li>• Appendices 3-2 &amp; 3-3 combined into Appendix 3-2.</li> <li>• Section 12: revised Document Control and Recordkeeping requirements. Changed</li> </ul>	December 1, 2009





	<p>references cited. Removed Attachments from section and converted them to Appendices.</p> <ul style="list-style-type: none"> <li>Section 11: changed review of EOP to at least annually and can also occur due to changes in personnel or equipment.</li> </ul>	
<b>Title</b>	<b>Approved By:</b>	<b>Approval Date</b>
Biosolids Environmental Management System	Marti Gibson, EMS Coordinator John R. Carman, Public Utilities Director	October 1, 2010
<b>Revision Number</b>	<b>Description of Revisions</b>	<b>Date</b>
09	<p>Revisions resulting from annual manual review and audit processes:</p> <ul style="list-style-type: none"> <li>Signature page amended to use titles and no names. Also included additional team members. For manual review, changed quarterly EMS team meetings to just EMS team meetings.</li> <li>Goals and Objectives: Section 5.2 #11, changed quarterly EMS team meetings to just EMS team meetings.</li> <li>Public Participation &amp; Planning: Section 6.2.1 #6, changed quarterly EMS team meetings to just EMS team meetings. Section 6.2.2 #2, changed quarterly EMS team meetings to just EMS team meetings. Section 6.2.3 #2, changed quarterly EMS team meetings to just EMS team meetings. Also corrected numbering of bullet points. Section 6.2.5.1 changed contract documents to service agreements. Section 6.2.5.2 changed quarterly inspections to semi-annual.</li> <li>Roles and Responsibilities: Section 7.2.1 changed quarterly EMS team meetings to just EMS team meetings. Changed meets quarterly with PUD to meets at least annually with Departmental EMS team. Section 7.2.6 changed the word contracts to service agreements. Removed Section 7.2.13 Process Control Training Officer and reassigned duties to NRWTP Operations Supv. Added "Coordinate equipment supplier training" to appropriate staff responsibilities.</li> <li>Training: Section 8.2.1.1 added at least</li> </ul>	October 1, 2010



	<p>annually. Section 8.2.1.4 changed quarterly to semi-annual. Changed 8.2.3.4 from contracts to service agreements.</p> <ul style="list-style-type: none"><li>• Emergency Preparedness and Response: Section 11.2.5 changed periodic to semi-annual and changed contracts to service agreements.</li><li>• Monitoring and Measurement: Section 13.2.1.3 added track on a daily basis. Section 13.2.1.4 changed contract documents to service agreements. Section 13.2.2.1 removed word "are" (grammatical). Section 13.2.2.2 changed quarterly to just EMS team meetings. Section 13.2.2.3 changed PUD to Departmental EMS team.</li><li>• Corrective and Preventive Action: Section 14.2.9 changed "management" to Departmental EMS team.</li><li>• Internal EMS Audit: Section 16.2.9 changed "management" to Departmental EMS team. Section 16.3 changed from Process Control Training Officer to party(s) selected by the EMS Coordinator with input from the EMS team.</li><li>• Management Review: Section 17.2.1 changed quarterly EMS team meetings to just EMS team meetings. Section 17.2.3 changed Public Utilities Director to Departmental EMS team. Section 17.3.2 changed quarterly EMS team meetings to just EMS team meetings.</li><li>• Glossary of Terms: Added definition for EMS team and Departmental EMS team.</li><li>• Entire manual: replaced Ops SQL with Ops Hach WIMS.</li></ul>	



City of Raleigh Public Utilities Department  
Biosolids Environmental Management System Manual

Biosolids EMS Manual Cross-References	
EMS Sections	Sections Referenced:
1	2, 3, 7, 12
2	4, 5, 6, 8, 17
3	2, 4, 6, 8, 12, 13, 17
4	7, 8, 12, 14, 16
5	2, 6, 13, 14, 15, 16, 17
6	2, 3, 4, 5, 8, 11, 15
7	8, 12
8	2, 3, 4, 5, 7, 12, 16
9	(combined with chapter 6)
10	(combined with chapter 3)
11	4, 6, 8, 12, 14
12	
13	2, 3, 4, 5, 6, 12, 14, 15, 16
14	2, 3, 4, 6, 7, 12, 16, 17
15	2, 6, 13, 16
16	2, 4, 6, 14, 15, 17
17	2, 4, 6, 12, 13, 15, 16



The initial copy of this Neuse River Wastewater Treatment Plant (NRWWTP) Environmental Management System (EMS) Manual has been approved by the City of Raleigh Public Utilities Director (see below for signatures). Future revisions to the manual can be made by the EMS Coordinator in conjunction with the EMS Team.

All requirements of this manual apply to the Biosolids Program at the Neuse River Wastewater Treatment Plant and meet the minimum requirements of the National Biosolids Partnership Environmental Management System.

Copies of this document are available on the T:\ drive of the City's intranet. Notification when changes are made to it will be sent to:

Public Utilities Director  
Assistant Public Utilities Director for Water Resources and Management  
Wastewater Treatment Superintendent  
Reuse Superintendent/Biosolids Program Manager  
EMS Coordinator  
Laboratory Supervisor  
Wastewater Operations Supervisor  
Industrial Pretreatment Coordinator  
Residuals Distribution Coordinator  
Land Management Supervisor  
Plant Maintenance Manager  
Plant Maintenance Supervisor  
Assistant Reuse Superintendent

***H. Dale Crisp, P.E.***

***Marti Gibson***

H. Dale Crisp, P.E.  
Public Utilities Director

Marti Gibson  
EMS Coordinator

October 12, 2006

October 12, 2006

Date Approved

Date Approved

**Revised manual approval:**

***John R. Carman***

***Marti Gibson***

John R. Carman  
Public Utilities Director

Marti Gibson  
EMS Coordinator

October 1, 2010

October 1, 2010

Date Approved

Date Approved



# EMS Manual

## 1.1 Introduction

The City of Raleigh Public Utilities Department's (CORPUD) Neuse River Wastewater Treatment Plant (NRWWTP) provides wastewater treatment to Raleigh and the surrounding communities of Garner, Rolesville, Wake Forest, Wendell, Knightdale and Zebulon. It is a 60 MGD plant located in southeast Raleigh, the capital city of North Carolina. Currently, the plant produces 35 – 40 dry tons of biosolids per day, which is made into a Class A product known as Raleigh Plus that is land applied on privately owned agricultural land or turned into a Class A compost product by a private industry. In addition, the plant produces an aerobically digested Class B liquid biosolid used as a fertilizer on local, private farms.

In 2003, the City decided to become a National Biosolids Partnership demonstration agency by participating in the National Biosolids Partnership's (NBP) Environmental Management System (EMS) program, created to advance environmentally sound and accepted biosolids management practices. CORPUD developed a biosolids EMS to continually improve the environmental performance of its biosolids management activities and demonstrate this performance to stakeholders. The EMS is based on the NBP *EMS Guidance Manual* and is intended to produce outcomes in the following areas:

1. Quality management practices
2. Improve relations with interested parties
3. Regulatory compliance
4. Environmental performance

The EMS is documented in this manual and in other referenced and associated materials. The focus of the biosolids EMS program is the NRWWTP. Portions of this EMS extend beyond the boundaries of the NRWWTP to where biosolids are used or disposed. The EMS covers biosolids management activities throughout the biosolids value chain (see graphic below), which is the cradle-to-grave sequence of activities that affect the quality and stability of biosolids.



## 1.2 Responsibility

The Raleigh City Council adopted a resolution endorsing the City's development of a biosolids EMS. The overall responsibility for overseeing the EMS lies with the EMS Coordinator. The EMS Coordinator is sponsored and supported managerially by the Public Utilities Director, who has the authority to commit resources and people to biosolids management activities. The EMS manual is approved by the Public Utilities Director. Future revisions and maintenance of the manual can be made by the EMS Coordinator in conjunction with the EMS Team.



## 1.3 Procedure

### 1.3.1 Review and Approval

1. Review manual at least annually.
2. Recommend and review any updates and other changes arising prior to the annual review at EMS team meetings.
3. Summarize changes to the manual and report to the Public Utilities Director for review (EMS Coordinator).
4. Update manual with approved changes (EMS Coordinator).

### 1.3.2 Communication of Revisions

1. Inform Public Utilities Director and EMS team of any revisions to the EMS manual.
2. Post most recent version of the biosolids EMS manual on the City's website and the Public Utilities ADM shared drive.
3. Control manual so that changes can be made only by the EMS Coordinator or designee.

## 1.4 References

National Biosolids Partnership *Biosolids EMS Guidance Manual*  
National Biosolids Partnership *Third-Party Verification Auditor Guidance*  
Biosolids Management Policy  
Critical Control Points and Operational Control of Critical Control Points  
Roles and Responsibilities  
Documentation, Document Control and Recordkeeping





## Biosolids Management Policy

---

### 2.1 Purpose

To establish the biosolids management policy for CORPUD'S NRWTP and commit to the principles of conduct outlined in the NBP Code of Good Practice.

### 2.2 CORPUD's Biosolids Management Policy Statement

The Public Utilities Director approved the following policy of the biosolids management system.

**"The City of Raleigh's Biosolids Environmental Management System (EMS) for the Neuse River Wastewater Treatment Plant (NRWWTP) will provide a sustainable biosolids management program for customers while protecting the environment and maintaining public health at a fair and reasonable cost. In order to do this, the City of Raleigh will uphold the principles of conduct specified in the National Biosolids Partnership's Code of Good Practice."**

Approved: July 23, 2004

Revised: October 1, 2010

Signed: *John P. Carman*

The City of Raleigh is firmly committed to the implementation of a Biosolids EMS. As biosolids professionals, the City commits to operating and maintaining its biosolids management program to

- comply with all applicable laws and regulations
- develop sustainable biosolids management practices that encourage beneficial reuse of biosolids and produce them in a cost effective manner
- maintain quality biosolids products and continue to improve them in response to customer needs
- promote cooperation and understanding with the public and further enhance community relationships.

The policy will be reviewed at least annually and whenever changes to regulations, processes or corrective action may dictate the need for a change in policy.

### 2.3 Procedure

1. Communicate policy and code of good practice to affected staff, relevant contractors, and interested parties.
2. Post the policy statement and code of good practice on the City's intranet and website ([www.raleighnc.gov](http://www.raleighnc.gov)).
3. Train affected employees on the Code of Good Practice and Biosolids EMS policy. Employees are expected to comply with the letter and intent of this policy.

### 2.4 References

Compliance with Legal and Other Requirements  
Goals and Objectives  
Public Participation in Planning and Communication  
Training  
Management Review



## Critical Control Points and Operational Control of Critical Control Points

---

### 3.1 Purpose

To identify and update the points, and operational control of those points, in the biosolids value chain where biosolids quality, legal compliance and environmental impacts can be controlled. Those points are identified as Critical Control Points (CCPs).

### 3.2 Procedure

#### 3.2.1 Identifying and Updating CCPs and Operational Controls

1. Evaluate unit process operations and management activities to identify and maintain up-to-date listings of CCPs and operational controls of identified CCPs.
2. Consider legal and public acceptance requirements, National Manual of Good Practice, WEF manuals of practice and industry recognized BMPs, as well as personal experience of biosolids program staff when identifying and/or updating CCPs and operational controls.
3. Document identified CCPs and operational controls (Appendix 3-2).
4. Evaluate and measure performance at CCPs.
5. Review and/or update the list of CCPs and operational controls at least annually or when major changes occur in treatment processes, equipment or other relevant areas.
6. Use Management of Change procedure for operational and process changes.
7. Update operational control procedures, monitoring and measurement procedures, DOPs, O&M manuals and other EMS documents as necessary.
8. Require contractors to establish their own operational controls consistent with their roles and responsibilities in the biosolids management activities as specified in Appendix 8-1. Sub-contractors must also adhere to the requirements of the contractor (Appendix 8-1).
9. Notify NBP of any constructive or operational change requiring a corresponding change to the identified CCPs or environmental impacts with the CCP, briefly describing the change and its impacts.

### 3.4 References

Biosolids Management Policy  
Compliance with Legal and Other Requirements  
Public Participation in Planning and Communication  
Training  
Documentation, Document Control, and Recordkeeping  
Monitoring and Measurement  
Management Review  
National Biosolids Management *National Manual of Good Practice*  
WEF Manuals of Practice  
Notes of EMS Team and Stakeholder Meetings



## **Compliance with Legal and Other Requirements**

---

### **4.1 Purpose**

To identify, track, and respond to changes in legal and other requirements, regulatory compliance issues applicable to the biosolids program and monitor compliance of contractors.

### **4.2 Procedures**

1. Identify legal and other requirements for the biosolids management program through networking, communication with regulatory agencies, professional associations and publications, management review process and any other available means.
2. Assign staff to track specific regulatory, legal and legislative initiatives identified and present summary of activity for initiatives at management review.
3. Evaluate potential impacts, applicability to the biosolids program.
4. Incorporate legal and other requirements through identifying critical control points where legal and other requirements apply.
5. Document legal and other requirements.
6. Communicate potential issues and responses for changes in legal and other requirements that may affect the biosolids program at EMS team meetings, emails, memos, management reviews or other means.
7. Contractors identify, track and implement changes in legal and other requirements that impact their involvement in the biosolids management program.
8. Address all noncompliances through the Corrective and Preventive Action process.

### **4.3 Monitoring Regulatory Compliance of Contractors**

1. Contractors are to adhere to applicable regulatory and other requirements as stated in contract agreements (Appendix 8-1).
2. Contract liaisons will monitor, record, and identify regulatory compliance or noncompliance of contractors during site inspections.
3. Contractors must notify the EMS Coordinator, appropriate EMS staff, and the local office of NCDENR of any regulatory noncompliance.
4. Contractors will notify the EMS Coordinator and the Reuse Superintendent for contractual (non-regulatory) noncompliances.
5. Address all noncompliances through the Corrective and Preventive Action process.

### **4.4 References**

Documentation, Document Control, and Recordkeeping  
Corrective and Preventive Action  
Internal EMS Audit  
City of Raleigh Land Application Program Permit (WQ 0001730)  
City of Raleigh Class A Distribution Permit (WQ 00011583)



## Goals and Objectives

---

### 5.1 Purpose

To establish goals and objectives for continuous improvement of the biosolids management program (See Appendix 5-1).

### 5.2 Procedure

1. Establish goals and objectives for the biosolids program on an annual basis.
2. Set goals that support performance improvements in four key outcome areas:

Quality management practices	Public participation
Regulatory compliance	Environmental performance
3. Develop goals and objectives using the SMART criteria and that are consistent with the biosolids management program.
4. Consider and incorporate input received from interested parties, regulators, and elected officials (if any) if feasible and applicable to the biosolids management program.
5. Present draft goals and objectives to stakeholders and interested parties at the annual stakeholders meeting for review and/or comment.
6. Develop an action plan assigning responsibilities and a timeframe for completing the objectives.
7. Document modifications or changes to goals and objectives and the reason for the modification. Goals and objectives may be modified based upon changing priorities or circumstances.
8. Prioritize goals and objectives and make recommendations during annual budget development process to complete the objectives scheduled for the budget year.
9. Review the long-term implementation plan and the proposed operations and capital budget as part of the annual budget development process.
10. Measure progress against goals on an annual basis.
11. Measure and track progress of objectives and review at EMS team meetings.
12. CAPA process may be used if progress is considered inadequate.
13. Summarize goals and objectives progress and include in the Biosolids Management Program Report.
14. Evaluate progress of goals and objectives in internal audits and Management Review.

### 5.3 References

Biosolids Management Policy  
Public Participation in Planning and Communication  
Monitoring and Measurement  
Corrective and Preventive Action  
Biosolids Management Program Report  
Internal Audit  
Management Review  
National Biosolids Partnership Manual of Good Practice



## Public Participation in Planning and Communication

---

### 6.1 Purpose

To establish procedures for the process of external communication to interested parties and contractors, and internal communication with NRWTP staff.

### 6.2 Procedure

#### 6.2.1 Receiving Public Input

1. Receive and respond to input from interested parties utilizing multiple channels of communication.
2. Document contact, input and information received, both formal and informal, using the Citizen/Neighbor Contact Tracking Form (Appendix 6-1).
3. Forward Citizen/Neighbor Contact form to appropriate staff person who will respond to contact within two business days.
4. Document staff response on the form and submit completed form to the Senior Staff Support Specialist for logging and tracking.
5. Contractors may also receive input while performing contracted services for the biosolids program.
6. Review Citizen/Neighbor Contact logs at EMS team meetings.

#### 6.2.2 Response and Consideration of Public Input

1. Consider input received from stakeholders and interested parties (if any) when making decisions regarding the biosolids management program, setting program goals and objectives and for gaining public acceptance of biosolids.
2. Review records of public input received (if any) during EMS team meetings for relevancy to the program and consistency with the Code of Good Practice.
3. Review and update goals and objectives to help address and incorporate comments and concerns received when feasible and/or appropriate.
4. Discuss and consider public input during the review and update of environmental impacts for CCPs and operational controls. Comments received regarding environmental impacts will be incorporated when feasible and/or appropriate.

#### 6.2.3 Communication and Outreach

1. Identify interested parties and stakeholders, which may include but not limited to, public, contractors and regulators.
2. Provide opportunities for interested parties to communicate their input on environmental impacts, program performance and areas in which the program can improve.
3. Review input received (if any) at EMS team meetings for relevancy and consideration into planning the biosolids management program.
4. Document biosolids-related education and outreach efforts.
5. Communicate information about biosolids policy, applicable legal requirements, biosolids goals and objectives, third party audit schedules and results, and other EMS program information to stakeholders and interested parties.



6. Maintain a list of interested parties and contact information.

#### **6.2.4 Internal Communication**

1. Report relevant and required information about biosolids management activities to staff via emails, memos, staff meetings, postings or other methods. Biosolids management program information is also available on the Public Utilities ADM shared drive on the City's intranet.
2. Provide opportunities for employee input into management system.
3. Employees communicate any relevant or required information to their supervisors via emails, memos, staff meetings, verbally or other methods.

#### **6.2.5 Contractor Communication**

1. Identify and incorporate the roles, duties, and responsibilities of biosolids management suppliers and contractors into service agreements (see Appendix 8-1).
2. Disseminate other EMS program information to contractors through the annual stakeholders meeting, contract negotiations or other standing and ad-hoc meetings, email, and telephone conversations. Information also disseminated to contractors during semi-annual inspections for contract compliance.
3. Contractors and suppliers communicate any relevant or required information to CORPUD via emails, memos, meetings, verbally or other methods.

### **6.3 References**

National Biosolids Partnership *Code of Good Practice*  
Biosolids Management Policy  
Critical Control Points and Operational Control of Critical Control Points  
Compliance with Legal and Other Requirements  
Goals and Objectives  
Training  
Emergency Preparedness and Response  
Biosolids Management Program Report





## Roles and Responsibilities

---

### 7.1 Purpose

To define the roles and responsibilities for staff and contractors performing biosolids management activities and EMS functions. In addition, other sections and related documents describe roles and responsibilities where relevant to certain procedures (See Appendices 7-1 & 7-2).

### 7.2 Biosolids EMS Roles and Responsibilities

#### 7.2.1 EMS Team

- Consists of the EMS Coordinator, the NRWTP Superintendent, the Reuse Superintendent and the programs heads involved in biosolids management activities.
- Recommends EMS manual revisions and/or adjustments to resources.
- Conduct management review of biosolids EMS at EMS team meetings.
- Meets at least annually with the Departmental EMS team to present and discuss management review of EMS program.

#### 7.2.2 EMS Coordinator

- Overall responsibility for implementing management system for biosolids management program.
- Monitoring performance of biosolids management system.
- Reporting the performance of the biosolids management system.

#### 7.2.3 Public Utilities Director

- Management responsibility and authority for overseeing the biosolids management program including ensuring adequate human resources, funding, other resources and training are available to develop, implement and operate the biosolids management program.
- Appoints the EMS Coordinator.
- Approves EMS Manual.

#### 7.2.4 Reuse Superintendent

- Overall management of the following programs: Land Management, Pretreatment, Reuse, and Biosolids Distribution.
- Assists EMS Coordinator with tasks indicated above.
- With NRWTP Superintendent, monitors compliance with all federal and state regulatory requirements related to biosolids management; monitoring and providing input to federal and state regulatory development.
- Initiates the permit application process (new or modified).
- Prepare annual budget for Reuse Division.
- Prepare annual Biosolids Land Application Report for the EPA and State of North Carolina.
- Coordinate equipment supplier training.

#### 7.2.5 NRWTP Superintendent

- Overall management of the following programs: Laboratory, Operations, Maintenance, and Remote Facilities.



- With Reuse Superintendent, monitors compliance with all federal and state regulatory requirements related to biosolids management; monitoring and providing input to federal and state regulatory development.
- Prepare annual budget for the NRWTP Division.
- Coordinate equipment supplier training.

#### **7.2.6 Assistant Reuse Superintendent**

- Monitor contractors (dewatered sludge haulers) for adherence to guidelines applicable to biosolids management activities as stated in their service agreements.
- Manages, coordinates and oversees data management for all aspects of the biosolids programs, including nutrient management for individual fields, application predictions, general compliance with respect to nutrient loadings, and reporting.
- Coordinate equipment supplier training.

#### **7.2.7 Industrial Pretreatment Coordinator**

- Management of the Industrial Pretreatment Program.
- Prepare Pretreatment Annual Report summarizing compliance status of SIUs.
- Collect annual biosolids TCLP samples.
- Coordinate groundwater monitoring of compliance wells at the NRWTP.
- Coordinate equipment supplier training.

#### **7.2.8 Residuals Distribution Coordinator**

- Management of the Residuals Distribution Program.
- Liaison between biosolids hauling contractors and the biosolids management program.
- Monitors and inspects contractors (off-site Class A & Class B haulers) contract operations.
- Coordination of all off-site deliveries and application of Class A and B.
- Liaison between contractors, data managers and Land Management Supervisor.
- Coordinate equipment supplier training.

#### **7.2.9 Land Management Supervisor**

- Management of the Land Management Program.
- Site management of the NRWTP.
- Track biosolids quantities including on-site and off-site volumes.
- Coordinate equipment supplier training.

#### **7.2.10 Laboratory Supervisor**

- Management of the Laboratory Program.
- Laboratory data entry in the Ops Hach WIMS system.
- Analysis of environmental sampling as deemed necessary per legal requirements or operational controls.
- Coordinate equipment supplier training.

#### **7.2.11 NRWTP Operations Supervisor**

- Management of the Operations Program.
- Operational data entry in the Ops Hach WIMS system.
- Conduct training for operators on biosolids processes and equipment.
- Develops and/or edits DOPs of operational processes.



- Data collection and interpretation of process control for the plant.
- Coordinate equipment supplier training.

#### **7.2.12 Plant Maintenance Supervisor**

- Preventive and corrective maintenance of equipment used at the plant and in the biosolids process.
- Repairs to equipment used at the plant and in the biosolids process.
- Maintains Mainstar program to record and track maintenance work orders.
- Coordinate equipment supplier training.

#### **7.2.13 Senior Staff Support Specialist**

- Maintain Citizen/Neighbor Customer Contact Tracking logs.
- Oversee tracking and maintenance of training records.
- Maintain master stakeholder and interested party list.

#### **7.2.14 Biosolids Contractors**

- Perform full-service contracts for hauling, storing, applying, permitting, and recordkeeping for all biosolids-related end-use.
- Primary responsibility for activities, procedures, recordkeeping, training and reporting for biosolids transport and end-use.
- Adherence to commitments of the biosolids EMS policy, the principles of the NBP Code of Good Practice, and EMS functions as outlined in EMS procedures.
- Adherence to the above responsibilities listed in service agreements for contracted activities relevant to biosolids management (Appendix 8-1).

### **7.3 Procedure**

1. Assign EMS roles and responsibilities for appropriate staff and update assignments as necessary (EMS Coordinator).
2. Approve changes in roles and responsibilities documented in EMS manual (Public Utilities Director).

### **7.4 References**

EMS Manual  
Training  
Documentation, Document Control, and Recordkeeping



## Training

---

### 8.1 Purpose

To identify, track and provide training activities to ensure competency of staff in biosolids management activities and EMS functions, including training activities of contractors.

### 8.2 Procedures

#### 8.2.1 Training

1. Conduct training on the biosolids management program and general EMS awareness at least annually.
2. Post biosolids management policy at various locations throughout the facility.
3. Notify contractors of the environmental policy and require establishment of their own training program consistent with the biosolids EMS.
4. Monitor training requirements of contractor personnel on a semi-annual basis and report to the EMS Coordinator.
5. Train staff on facility emergency operation procedures, including the EOP for biosolids.
6. Evaluate competency and awareness of staff and identify appropriate training.
7. Train new employees on policy and EMS awareness as part of new employee orientation (Supervisors).
8. Train internal EMS auditors on internal audit procedures prior to performing audits.

#### 8.2.2 Competency

1. Assess staff competency in performing their assigned biosolids management responsibilities using some or any of the following methods.
  - Job descriptions
  - Communication
  - Oral or written tests
  - On the job observations
  - City of Raleigh annual employee performance reviews
2. Provide additional training in areas where competency is determined to be inadequate.

#### 8.2.3 Recordkeeping

1. Document attendance at EMS training sessions and maintain records.
2. Maintain employee-training records containing certifications and/or attendance sheets for training sessions attended, both inside and outside of CORPUD.
4. Contractor training records are maintained by the respective contractors' human resources divisions, as defined in service agreements (Appendix 8-1).

### 8.3 References

Biosolids Management Policy  
Critical Control Points and Operational Control of Critical Control Points  
Compliance with Legal and Other Requirements  
Goals and Objectives  
Roles and Responsibilities  
Documentation, Document Control, and Recordkeeping  
Internal EMS Audit



---

## Emergency Preparedness and Response

---

### 11.1 Purpose

To ensure effective response to accidents and emergency situations associated with biosolids management activities, and to minimize associated risks, including the activities of the biosolids contractors.

### 11.2 Procedure

1. Evaluate and update the Emergency Operations Plan (EOP) for biosolids (Appendix 11-1) at least annually based on desktop exercises, actual incidents, actual exercises and drills.
2. Review and/or updates to the EOP for biosolids can also occur due to personnel and equipment changes.
2. Review and update the comprehensive NRWTP Emergency Plan at least every three years.
3. Conduct investigations of accidents and emergency situations associated with biosolids management activities.
4. Document corrective action plans for accidents and emergency situations using Biosolids EMS CAPA Plan Form (Appendix 14-1).
5. Monitor biosolids management contractors during semi-annual site visits to verify they have on file the most current version of the EOP and follow the guidelines in the EOP applicable to biosolids management activities as stated in their service agreement (Appendix 8-1).
6. Site visits are conducted by the appropriate contract liaison.

### 11.3 References

Compliance with Legal and Other Requirements  
Training  
Public Participation in Planning and Communication  
Documentation, Document Control and Recordkeeping  
Corrective and Preventive Action



## **Documentation, Document Control, and Recordkeeping**

---

### **12.1 Purpose**

To identify important documents and records required to support and demonstrate the performance of this biosolids EMS program. This procedure applies to contractor activities within the biosolids management program (Appendix 8-1) but does not apply to contractors' internal documents, which are controlled and managed according to contractors' internal procedures as appropriate.

### **12.2 Procedure**

#### **12.2.1 Documents and Records Requiring Control**

1. The following documents are under control by CORPUD as part of the biosolids management program:
  - Policies
  - EMS Manual
  - DOPs
  - EOP
  - Service Agreements

#### **12.2.2 Procedure for Document Control**

1. Identify documents that require control, the individual responsible for the controlled document and the location of stored documents (Appendix 12-1).
2. Maintain a master copy of each controlled document. Any copy of a controlled document other than the master copy is considered uncontrolled.
3. Controlled documents are approved, identified and dated, easily accessible and reviewed to ensure the document is correct, complete and up-to-date.
4. Review of controlled documents will generally be made in response to one or more of the following: management of change, corrective and preventive actions, regulatory requirements, management review, review of DOPs or periodic review.
5. Notify affected persons of approved changes in controlled documents and make updated versions available.
6. Archive or destroy obsolete versions of the documents.
7. The responsible person may delegate document control responsibilities but retains responsibility to ensure the document is effectively controlled.

#### **12.2.3 Documents of External Origin**

1. The following documents are needed to operate the biosolids management system but are not reviewed or approved by CORPUD:
  - O & M manuals
  - Regulations
  - Permits
  - MSDS sheets
2. These documents must be kept current and accessible by the assigned custodian.





### **12.2.3 EMS Records**

1. Identify records that require control, the primary custodian of the record, the location of stored records and the retention requirement (Appendix 12-2).
2. The primary custodian will maintain each controlled record so it is identifiable, legible, easily accessible and secure.
3. Only the responsible person can alter or change a controlled record.
4. Changes to controlled records must note the reason for the change and the approval for making the change on the previous record.
5. Follow the state records retention schedule for controlled records.
6. The responsible person may delegate record control responsibilities but retains responsibility to ensure the document is effectively controlled.

### **12.3 References**

Appendix 12-1

Appendix 12-2

Appendix 12-3

NC Records Retention and Disposition Schedules for Counties and Municipalities



---

## Monitoring and Measurement

---

### 13.1 Purpose

To monitor compliance with applicable legal requirements, measure performance at CCPs, contractor performance and track progress toward achieving the goals and objectives of the biosolids program.

### 13.2 Procedure for Monitoring and Measurement

#### 13.2.1 Monitoring Performance and Compliance at Critical Control Points

1. Establish DOPs for monitoring and measuring operating performance and compliance with legal requirements at CCPs, and performing calibrations on associated process and testing equipment.
2. Monitor operational data daily for compliance.
3. Track process control system, laboratory information system and operation reporting system analytical information in the Ops Hach WIMS database on a daily basis.
4. Monitor contractor performance on a regular basis for compliance with service agreements (Appendix 8-1).

#### 13.2.2 Monitoring Progress Toward Goals and Objectives

1. Establish objectives/targets for each program goal.
2. Review and track progress toward identified objectives at EMS team meetings (Appendix 5-1).
3. Prepare status update for the EMS team and Departmental EMS team.
4. Monitor progress toward achieving goals and objectives and notify EMS team if progress falls behind (EMS Coordinator). Modifications to goals and objectives may have to be made to accommodate for changing circumstances.
5. Review progress of goals and objectives in internal audit process. Include summary in the Biosolids Management Program Report.

### 13.3 References

Biosolids Management Policy  
Critical Control Points and Operational Control of Critical Control Points  
Compliance with Legal and Other Requirements  
Goals and Objectives  
Public Participation in Planning and Communication  
Documentation, Document Control, and Recordkeeping  
Corrective and Preventive Action  
Biosolids Management Program Report  
Internal EMS Audit  
National Biosolids Management *National Manual of Good Practice*



## Corrective and Preventive Action

---

### 14.1 Purpose

To identify, investigate, report, correct and prevent nonconformances and noncompliances.

### 14.2 Procedure

1. Identify nonconformances, noncompliances, problems or potential problems discovered during routine monitoring and measurement, emergency incidents, audits, experience or other methods.
2. Document the problem using Biosolids EMS CAPA Plan Form (Appendix 14-1) and report problem to the EMS Coordinator, WWTP and/or Reuse Superintendents.
3. Develop corrective action plan to implement necessary corrective or prevention actions.
4. Perform root cause analysis for problem or issue. Include root cause in corrective action plan.
5. Review and approve proposed corrective action plans, designate responsible staff for implementation and monitor progress of corrective action plans.
6. Monitor and review progress toward resolution and effectiveness of solution of CAPA through EMS team meetings. Completed CAPAs are closed by the appropriate program superintendent and/or the EMS Coordinator.
7. Document corrective actions performed in response to complaints using the Citizen/Neighbor Contact Tracking Form (Appendix 6-1).
8. Maintain status tracking log of CAPAs.
9. Report nonconformances, noncompliances and corrective actions to Departmental EMS team as part of Management Review process.

### 14.3 References

Biosolids Management Policy  
Critical Control Points and Operational Control of Critical Control Points  
Compliance with Legal and Other Requirements  
Roles and Responsibilities  
Public Participation in Planning and Communication  
Documentation, Document Control, and Recordkeeping  
Internal EMS Audit  
Management Review



---

## Biosolids Management Program Report

---

### 15.1 Purpose

To prepare a periodic biosolids management program report for the biosolids program.

### 15.2 Procedure

1. Produce a biosolids management program report to summarize achievements and performance of relevant biosolids management program activities at least annually for previous calendar year.
2. Include the following information in the report.
  - Production and distribution of biosolids produced by the NRWTP.
  - Program highlights and measures of biosolids program performance.
  - Summary of regulatory compliance performance.
  - Summary of contractor performance.
  - Progress toward goals and objectives.
  - Summary of interested parties and stakeholder involvement.
  - Results of internal audits and third-party audits (or where to obtain results).
3. Communicate and/or distribute copies of the published biosolids management program via the website and/or other forms of written, verbal and electronic communication.

### 15.3 References

Biosolids Management Policy  
Public Participation in Planning and Communication  
Monitoring and Measurement  
Internal EMS Audit  
National Biosolids Partnership *National Manual of Good Practice*



## Internal EMS Audit

---

### 16.1 Purpose

To perform periodic review of the biosolids management program to evaluate its performance and identify opportunities for improvement of the biosolids management system.

### 16.2 Procedure

1. Conduct internal audits at least annually.
2. Develop scope and plan for internal audit (Internal Auditor) with input from EMS Coordinator.
3. Conduct audits in accordance with the audit criteria as described in the NBP Third Party Verification Auditor Guidance.
4. Include assessments to evaluate biosolids management system performance in the following areas.
  - Biosolids management policy and the NBP Code of Good Practice
  - Established program goals and objectives
  - Contractor performance
  - Biosolids program requirements and performance relative to the four outcome areas
5. Review preliminary audit results with EMS Coordinator.
6. Report results of internal audit to EMS team for review.
7. Develop CAPA plans for findings of nonconformance.
8. Communicate internal audit report to staff.
9. Present audit report to Departmental EMS team as part of the management review process.

### 16.3 Selecting and Training Internal Auditors

The internal audit will be conducted by the party(s) selected by the EMS Coordinator with input from the EMS team. Auditor training necessary to complete the audit may be provided by the EMS Coordinator, the NBP or others.

### 16.4 References

Biosolids Management Policy  
Compliance with Legal and Other Requirements  
Public Participation in Planning and Communication  
Corrective and Preventive Action  
Biosolids Management Program Report  
Management Review  
National Biosolids Partnership *National Manual of Good Practice*  
National Biosolids Partnership *Third Party Verification Auditor Guidance*



## Management Review

---

### 17.1 Purpose

To provide a strategic look into the biosolids management program to address the possible need for changes to policy, goals and objectives, or the biosolids management program based on internal audits, third-party audit results, changing circumstances and commitment to continual improvement.

### 17.2 Procedure

1. Conduct Management Review at the EMS team meetings to assess and review the biosolids EMS program.
2. EMS team Management Review will include:
  - Biosolids program effectiveness
  - Biosolids management policy
  - Goals and objectives
  - Internal and/or 3<sup>rd</sup> party audit results and compliance assessments
  - Corrective and Preventive action
  - Changing circumstances
  - Commitment to continual improvement
3. Report results of the EMS team Management Review at periodic meetings with the Departmental EMS team.
4. Prepare minutes of the Management Review and post on Public Utilities shared drive.
5. Update the EMS manual as needed.
6. Communicate results of Management Review to the City Manager and the City Council.

### 17.3 Management of Change

1. Monitor for changing conditions and requirements that require modification to the operations of the biosolids management program.
2. Assess biosolids management processes affected by changing conditions or requirements and review initiation of those changes at EMS team meetings.
3. Assign staff to design and implement the changes.
4. Document the changes using Appendix 17-1, Management of Change, and implement approved changes.
5. Update procedures and documents per established procedures.
6. Notify NBP and the third-party auditor of any significant changes to the EMS.
7. Retrain affected staff and contractors on revised EMS procedures and practices as soon as practical (EMS team and appropriate supervisors).

### 17.4 References

Biosolids Management Policy  
Compliance with Legal and Other Requirements  
Public Participation in Planning and Communication  
Documentation, Document Control, and Recordkeeping  
Monitoring and Measurement  
Biosolids Management Program Report  
Internal EMS Audit  
National Biosolids Partnership National Manual of Good Practice





---

## Glossary of Terms

---

**Appendices** - documents that relate more to the biosolids management system as a whole. The manual is complete without the appendices but appendices add insight into the biosolids management program.

**Biosolids** – solid organic matter recovered from a wastewater treatment process and used especially as fertilizer; usually referred to in the plural.

**BMP** – best management practice.

**CAPA** – Corrective and preventive action.

**CCP** – Critical Control Point: defined by the National Biosolids Partnership as those locations, unit processes, events, and activities throughout the biosolids value chain under the organization's direct control or influence that require effective policies, programs, procedures, practices, monitoring, and measurements to ensure the biosolids activities meet legal, quality, and public acceptance requirements and do not have undesirable environmental impacts. Critical control points include all biosolids management activities that are covered under applicable legal and other requirements.

The points, and operational control of those points, in the biosolids value chain where biosolids quality, legal compliance and environmental impacts can be controlled. Those points are identified as Critical Control Points (CCPs).

**CORPUD** – City of Raleigh Public Utilities Department.

**Departmental EMS Team** – includes the Public Utilities Director, the Assistant Public Utilities Director for Water Resources and Management and the EMS team.

**DOP** – departmental operating procedures. Standard work instructions and practices for employees describing the "how to" steps in managing CCPs of a specific management activity affecting NRWTP activities, compliance with legal and other requirements.

**DWQ** – Division of Water Quality (State of North Carolina).

**EMS** – Environmental Management System: management framework for integrating environmental considerations into day-to-day operations and decision-making, and for improving organizational performance over time.

**EMS Team** – includes Superintendents, program supervisors and managers for the Wastewater Treatment and Reuse Divisions. Also includes the EMS Coordinator.

**EOP** – Emergency Operating Plan.

**Interested Parties** - those individuals or groups of individuals who have expressed, shown or demonstrated an interest in the NRWTP biosolids management program. Interested parties can include, but are not limited to, regulators, local media, neighbors, local communities, farmers and others who have relevant input.

**Internal Audit** – a systematic internal investigation process for objectively evaluating the conformance to the requirements of the NRWTP EMS and identifying deficiencies to be corrected or resolved.

**Intranet** - the CORPUD ADM shared drive.

**NCDENR** – North Carolina Department of Environment and Natural Resources.



---

**NBP** – National Biosolids Partnership.

**NBP Code of Good Practice** – broad framework of goals and commitments to guide the production, management, transportation, storage and end-use of biosolids.

**NBP EMS Guidance Manual** – the NBP's EMS blueprint; a guidance document designed to assist in the development and implementation of a management system that meets the requirements set forth in the *Elements of an Environmental Management System for Biosolids (EMS Elements)*.

**NBP National Manual of Good Practice** – detailed set of guidance on the identification of CCPs and the selection of appropriate management practices.

**Noncompliances** – a deviation from federal, state and local laws, regulations and other compliance requirements applicable to NRWWTTP activities.

**Nonconformances** - a deviation from biosolids management policy, EMS procedures/requirements of the EMS Elements and/or NBP Code of Good Practice principles. They include circumstances that can create a noncompliance situation or significant environmental impacts.

**NRWWTTP** – Neuse River Wastewater Treatment Plant.

**O&M Manuals** – operation and maintenance manuals.

**Operational Controls** – ordinances, regulations, standard operating procedures, practices, technology, instrumentation and process controls, monitoring and other criteria developed, implemented and maintained by the NRWWTTP to ensure effective management of CCPs; including conformance with policy requirements and achievement of goals and targets.

Operational controls include associated DOPs, O&M manuals, maintenance procedures, lab analysis, contracts and operator skills that are required to effectively manage CCPs and meet legal requirements.

**Service Agreements** – the contract between the City (NRWWTTP) and other person(s) to perform specific activities and services.

**SIU** – Significant Industrial User.

**SMART Criteria** – specific, measurable, achievable, relevant, time-bound; criteria that is used to define and evaluate the suitability of a goal or objective/target.

**Third party Verification Audit** – a systematic, structured audit of the NRWWTTP EMS; performed by a qualified independent third party auditor using a standardized protocol for verification.

**USEPA** – United States Environmental Protection Agency.

**USEPA 40 CFR 503** – Federal regulation governing biosolids.